WHITE PAPER ON THE HARMFUL IMPACTS OF UNAUTHORIZED WIRELESS REPEATERS

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I. EXECUTIVE SUMMARY

For a number of years, manufacturers have designed and marketed to the public repeaters that amplify wireless signals[1] to attempt to enhance coverage in specific areas, such as within buildings and cars. In many cases, these devices are bought and installed by individual wireless subscribers or property managers without the licensed wireless provider's permission or knowledge. While these devices may better enable service for the party operating them, the interference effects and other service degradations from these types of equipment can be extremely harmful to other parties, including Public Safety licensees. Consumers, who may be unaware of the harmful effects of these devices, should be made aware that under Federal Communications Commission ("Commission" or "FCC") rules, they are not permitted to operate such devices since such operation is expressly prohibited by the Communications Act and the FCC's general and service-specific rules.

Below, CTIA-The Wireless Association® ("CTIA") discusses the relevant law dictating that wireless repeaters may only be operated by (1) licensees and (2) non-licensees operating under the express authority and control of a licensed entity. CTIA discusses ways in which the operation of wireless repeaters without proper authorization is resulting in harmful and costly interference to licensees' operations – resulting in severely degraded mobile wireless services for impacted consumers. The frequency and extent of such interference is increasing over time as more wireless repeaters are operated by non-licensees.

CTIA seeks the help of the FCC, and stresses that wireless carriers cannot fully address the problems posed by wireless repeaters without that help. At a time when the FCC and

[1] For example, these repeaters may amplify Cellular, Personal Communications Service ("PCS"), and/or Specialized Mobile Radio ("SMR") signals.

wireless carriers increasingly are focused on improving service quality, it is critical that the FCC take steps to support the industry's efforts to address this growing problem. CTIA asks the FCC to issue a notice to consumers confirming and informing them that operating wireless repeaters without licensee authorization is unlawful and may result in service outages and other harms to the network. CTIA also asks the FCC to issue a notice to manufacturers, importers, distributors, and retailers clarifying that they are permitted to market and sell repeaters only for use under the clear authority and control of licensees. By taking these two simple steps, the FCC will serve the public interest by ensuring consumers continue to receive the same high quality wireless services they have come to expect.

II. APPLICABLE LAW

A. Customers May Not Lawfully Operate Wireless Repeaters Without the Authority of a Licensee

The Communications Act and the Commission's rules make very clear that radio transmitters may be operated only by, or under the control of, a licensed entity. Section 301 of the Communications Act of 1934, as amended ("Communications Act"), prohibits any person from using or operating any apparatus for the transmission of energy or communications or signals by radio without a license.[2] Similarly, Section 302 of the Communications Act authorizes the Commission to prohibit the operation of devices that are capable of causing harmful interference to radio communications.[3] The Commission's rules governing the operation of commercial wireless systems echo these concepts and provide more detail.

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[2] 47 U.S.C. § 301 ("No person shall use or operate any apparatus for the transmission of energy or communications or signals by radio…except under and in accordance with this Act and with a license in that behalf granted under the provisions of this Act").

[3] 47 U.S.C. § 302(a) ("The Commission may, consistent with the public interest, convenience, and necessity, make reasonable regulations . . . governing the interference potential of devices in their operation are capable of emitting radio frequency energy by radiation, conduction, or other means in sufficient degree to cause harmful interference to radio communications").

Specifically, Section 1.903 of the Commission's rules provides that "[s]tations in the Wireless Radio Services must be used and operated only in accordance…with a valid authorization granted by the Commission."[4] In this part of the Commission's rules, a "radio station" is defined as a "separate transmitter or a group of transmitters under simultaneous common control, including accessory equipment required for carrying on a radio communications service."[5] Because wireless repeaters and amplifiers are transmitters and thus could cause interference to other radio communications, the operation of these devices requires a license. As suggested in the definition, the operation of multiple transmitters under common control may be covered by one license.

The Commission's rules governing cellular operations express a similar concept, but in even more detail.[6] Specifically, Section 22.3 provides that "[s]tations in the Public Mobile Services must be used and operated only in accordance with the rules in this part and with a valid authorization granted by the FCC under the provisions of this part."[7] In other words, an entity or individual must obtain a license from the FCC prior to operating a transmitter in any frequency band allocated for cellular service.

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4 47 C.F.R. § 1.903. Cellular, SMR and PCS services are Wireless Radio Services. *See* 47 C.F.R. § 1.907 (defining Wireless Radio Services as "all radio services authorized in parts…22 [cellular] 24 [PCS] 90 [SMR]"). This rule not only logically extends from Section 301 of the Communications Act but also from Section 302, implying that operation of an unauthorized station in the Wireless Radio Services would likely cause harmful interference to authorized Wireless Radio Services stations.

5 47 C.F.R. § 1.907.

6 The Commission's PCS rules do not have a similar requirement. Prior to the adoption of Section 1.903, Section 24.803 required individuals to obtain a license prior to operating a transmitter on PCS spectrum. Section 1.903, however, supplanted this rule.

7 47 C.F.R. § 22.3. This authorization will be granted only if the applicant is a common carrier, 47 C.F.R. § 22.7, and the FCC finds that "the applicant is qualified in regard to citizenship, character, financial, technical and other criteria, and that the public interest, convenience and necessity will be served" upon proper application. 47 C.F.R. § 22.3(a).

As was the case with Section 1.903, this rule refers to licensing "stations." It is clear that the Commission intended to include within this term transmitters of all types, including cellular repeaters and amplifiers, and not just limit the term to base stations. This part of the Commission's rules defines "station" as "a station equipped to engage in radio communication or radio transmission of energy."[8] Cellular repeaters clearly fall into this definition as the rules specifically define them as "stationary transmitter[s] or device[s] that automatically re-radiate[s] the transmissions of base transmitters at a particular cell site and mobile stations communicating with those base transmitters, with or without channel translation."[9] Accordingly, they must be licensed.

Nevertheless, there are several limited exceptions to this license requirement, all of which ensure that transmitters remain under the control of the licensee thereby reducing the potential for interference. None of these exceptions, however, give subscribers or other individuals or businesses, the right to operate repeaters or signal boosters without express authorization from the licensee. First, both the cellular and PCS rules state that a provider's license provides "blanket" authority for a variety of transmitters operating within the licensee's geographic area and frequency band.[10] Accordingly, additional transmitters designed to fill out a service area may be operated without a separate license.[11] These exceptions, however, apply only to

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[8] 47 C.F.R. § 22.99. This definition is identical to the definition of "radio station" in the Communications Act. 47 U.S.C. § 153(35). "Radio communication" is in turn defined in the Communications Act as "the transmission by radio of writing, signs, signals, pictures, and sounds of all kinds, including all instrumentalities, facilities, apparatus, and services (among other things, the receipt, *forwarding*, and delivery of communications) *incidental* to such transmission." 47 U.S.C. § 153(33) (emphasis added).

[9] 47 C.F.R. § 22.99.

[10] *See* 47 C.F.R. §§ 22.165, 24.11(b).

[11] An intentional radiator utilized as part of a tunnel radio system may also operate on any frequency provided it complies with certain requirements. 47 C.F.R. § 15.211. For example, operation of the tunnel radio system must be contained solely within a tunnel, mine, or other structure that provides attenuation to the radiated signal due to the

transmitters under the control of the licensee.[12] For instance, Section 22.165 of the Commission's rules provides that cellular *licensees* "may operate additional transmitters [including cellular repeaters[13]] at additional locations on the same channel or channel block as its existing system without prior Commission approval provided" the service area boundaries of the additional transmitters do not extend beyond the relevant Cellular Geographic Service Area.[14] Similarly, Section 24.11(b) provides that a PCS licensee is granted a blanket authorization for an entire market and frequency block.[15] Neither of these sections, however, authorizes subscribers to operate transmitters such as cellular repeaters or signal boosters. Obviously, it is the cellular/PCS licensee who is responsible for meeting the technical and operational limits, such as field strength at the geographic boundary, and the operation of these uncontrolled repeaters makes this type of control virtually impossible.

Second, licensees may install and operate in-building radiation systems[16] without applying for authorization or notifying the Commission.[17] This exception does not extend to

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presence of naturally surrounding earth and/or water. *Id.* at § 15.211(a). The interference-causing cellular repeaters are not being operated in this manner and are thus not covered by Section 15.211 of the Commission's rules.

12 *Revision of Part 22 of the Commission's Rules Governing the Public Mobile Services*, Report and Order, 9 FCC Rcd 6513, ¶ 22 (1994).

13 *See Amendment of Parts 22, 90, and 94 of the Commission's Rules to Permit Routine Use of Signal Boosters*, Report and Order, FCC 96-223, ¶ 3 (1996) ("Under Part 22, a form of signal booster, generally called a cellular repeater, may be employed by cellular licensees without separate licensing provided that the repeater does not extend the licensee's signal beyond the authorized cellular service area").

14 47 C.F.R. § 22.165. *See also Amendment of Parts 22, 90, and 94 of the Commission's Rules to Permit Routine Use of Signal Boosters*, Report and Order, 11 FCC Rcd 16621, ¶ 23 (1996) (indicating that a separate authorization for signal boosters, *i.e.* cellular repeaters, would be "burdensome and unnecessary" because "signal boosters operate on frequencies already authorized to the licensee").

15 47 C.F.R. § 24.11(b).

16 An "in-building radiation system" is "a supplementary system comprised of low power transmitters, receivers, indoor antennas and/or leaky coaxial cable radiators designed to improve service reliability inside buildings or structures located with the service areas of stations in the Public Mobile Services." 47 C.F.R. § 22.99.

third parties. Thus, only if the additional transmitters, such as cellular repeaters, are under the control of the underlying wireless carrier may they be operated without obtaining a specific license from the Commission.

Third, the Commission's general wireless communications rules provide that an operator's subscribers do not need a separate license to operate mobile or fixed stations (which are transmitters that would otherwise need to be licensed).[18] While broadly written, this rule was intended to apply only to "end user units," not base station units or other transmitters, especially those operating in the base-to-mobile spectrum band. Indeed in several orders, the Commission has referred to subscriber operated mobile and fixed stations as "end user units."[19] A repeater is clearly not an end user unit and is not, therefore, authorized under the Commission's subscriber exception. Moreover, the FCC's specific authorization of the operation of cellular repeaters by licensees implies that the subscriber's general authorization to operate fixed and mobile stations was not intended to apply to cellular repeaters or boosters.

The Commission's intention to limit subscriber operations to handsets is demonstrated in several ways. In the cellular context, the Commission specifically limited subscribers' authority to operate mobile stations to those subscribers in good standing and who are under the

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[17] *See* 47 C.F.R. § 22.383 ("Licensees may install and operate in-building radiation systems without applying for authorization or notifying the FCC, provided that the locations of the in-building radiation systems are within the protected service area of the licensee's authorized transmitter(s) on the same channel or channel block"). This provision applies to all Public Mobile Services, including the Cellular Radiotelephone Service. *See Amendment of Part 22 of the Commission's Rules to Delete Section 22.119 and Permit the Concurrent Use of Transmitters in Common Carrier and Non-Common Carrier Services; Amendment of Part 22 of the Commission's Rules Pertaining to Power Limits for Paging Stations Operating in the 931 MHz Band in the Public Land Mobile Service*, Report and Order, 9 FCC Rcd 6513, Appendix A (1994) (noting that in-building radiation systems "could be used in other Public Mobile Services, such as the Cellular Radiotelephone Service").

[18] 47 C.F.R. § 22.3(b).

[19] *See Amendment of Part 22 of the Commission's Rules To Benefit the Consumers of Air-Ground Telecommunications Services*, Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd 4403, ¶ 87 (2005) (referring to subscriber-operated stations as "end user units").

"operational control" of the licensee.[20] In other words, the Commission found that licensee authorization and control is essential to cellular subscribers' operation of mobile stations.[21] In making this determination, however, the Commission failed to distinguish between mobile and fixed stations or between cellular and other wireless stations. As the current prevalence of interference resulting from both mobile and fixed repeaters in the cellular, PCS, and SMR networks has shown, this analysis extends to all licensed commercial wireless services.

Moreover, as a factual matter, this limitation is logical because licensees retain ultimate control over end users' units, but are unable to do this with respect to units such as mobile and fixed repeaters. Licensees retain this control by dictating which units customers may and may not use and by monitoring such devices' access to the licensee's network. Currently, licensees can monitor these devices and terminate access if they determine the unit is either unauthorized or causing interference to the network. Mobile amplifiers and signal boosters, however, are far more difficult for licensees to control, especially when they have not been informed as to when and where a subscriber proposes to use the device. Moreover, many of these devices are broadband in nature such that they can produce potentially harmful emissions in spectrum for which the licensee is not authorized.

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[20] 47 C.F.R. § 22.927. Although this rule states that mobile stations of subscribers in good standing "are considered to be operating under the authorization of that cellular system" when receiving service from that system, it also makes clear that "[c]ellular system licensees are responsible for exercising effective operational control over mobile stations receiving service through their cellular systems."

[21] More specifically, the Commission indicated that subscribers must "comply with all applicable rules and regulations promulgated by the Commission, … must provide evidence to the carrier that the subscriber's mobile unit is compatible with the carrier's mobile system, must use only those mobile units which the carrier has agreed to serve, and must take prompt action to eliminate any unacceptable interference which the subscriber's mobile unit may cause to the mobile system or to other users." *See Amendment of Sections of Part 21 (now Part 22) of the Commission's Rules to Modify Individual Radio Licensing Procedures in the Domestic Public Radio Services (now Public Mobile Radio Services,* Report and Order, 77 FCC 2d 84, ¶ 7 (1980). Moreover, the Commission indicated that not only does it "retain enforcement jurisdiction over subscribers who fail to comply with the[se] requirements" but also that a carrier "may refuse or suspend service until the subscriber has corrected the deficiency in question." *Id.* at ¶¶ 8-9. *See also* 47 C.F.R. § 22.571 (providing that licensees are "responsible for exercising effective operational control over mobile stations receiving service through their stations").

Similarly, in the paging service context, the Commission has specifically limited the operation of signal boosters to licensees.[22] In its rules, the Commission has defined a signal booster as a "stationary device that automatically reradiates signals from base transmitters without channel translation, for the purpose of improving the reliability of existing service by increasing the signal strength in dead spots."[23] In other words, signal boosters and cellular repeaters are intended as a cheaper alternative to the deployment of additional fixed base stations.[24] In allowing licensees the use of signal boosters, the Commission acknowledged that signal boosters have the potential of causing harmful interference. Accordingly, the Commission limited signal booster operation to licensees and found that licensees utilizing signal boosters will be responsible for correcting harmful interference caused by their use. The combination of these rules and FCC statements indicate an intention to allow only licensees, not subscribers, to have control over the installation and operation of cellular repeaters and signal boosters. Indeed, in sum, the FCC has:

- Specifically authorized the use of cellular repeaters by licensees in Part 22, implying that the operation of cellular repeaters by subscribers under the general authorization was not intended;
- Specifically limited the use of mobile stations by cellular subscribers to those that are under the "operational control" of a licensee;

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[22] Although the Commission adopted this limitation through a rulemaking proceeding, the Commission did not need to then and need not now initiate a formal rulemaking proceeding. As CTIA explains below, the Commission can address the current situation simply by issuing public notices interpreting its current rules.

[23] 47 C.F.R. § 22.99. *See also* 47 C.F.R. § 90.7 (defining signal booster as a "device at a fixed location which automatically receives, amplifies, and retransmits on a one-way or two-way basis, the signal received from base, fixed, mobile, and portable stations, with no change in frequency or authorized bandwidth").

[24] *See Amendment of Parts 22, 90, and 94 of the Commission's Rules to Permit Routine Use of Signal Boosters*, FCC 96-223, ¶¶ 2-3 (June 5, 1996) (signal boosters "allow licensees to improve radio system efficiency at less cost and without imposing an additional licensing burden on either the licensee or the Commission" and describing cellular repeaters as a type of signal booster).

- Specifically authorized licensees to install and operate in-building radiation systems; and

- Found that signal boosters and cellular repeaters have the potential to cause harmful interference to other services, thus requiring licensees to be responsible for correcting any such interference.

For these reasons, CTIA requests that the FCC issue a Public Notice that states that wireless subscribers are expressly prohibited under the Communications Act and the FCC's rules from operating repeaters and signal boosters except under the express authorization and control of system licensees.

We note that the Commission has adopted rules that allow some forms of unlicensed operation in the cellular and PCS bands. However, this type of operation is governed by the rules within Part 15, not Parts 22 or 24. The Part 15 rules for unlicensed devices have power limits that are significantly lower than what is allowed for licensed services. Put simply, the operation of a device in the cellular and PCS bands is either licensed and must be under the direct operational control of a licensee, or it is unlicensed and must adhere to the operation and transmit power limits in Section 15.209. The wireless repeaters at issue here clearly do not meet the requirements of Section 15.209.

B. Repeaters May Not Be Lawfully Marketed to End-User Customers Who Do Not Have Authority to Operate Those Devices

Prior to being operated, cellular and PCS transmitters must be certificated by the FCC.[25] Section 22.377 of the Commission's rules requires that all transmitters used in the Public Mobile Services, including in-building radiation systems and cellular repeaters, be certificated prior to operation.[26] Similarly, Section 24.51 requires that all transmitters for PCS systems must be

[25] 47 C.F.R. § 22.377; 47 C.F.R. § 24.51.

[26] 47 C.F.R. § 22.377. The procedures for obtaining certification are set forth in Part 22 of the Commission's rules.

authorized by the Commission under its certification procedures. This certification process is designed to ensure that all devices comply with the applicable technical requirements governing the service in which they will operate. Indeed, the Commission's rules provide that certification is awarded only if "(1) [t]he equipment is capable of complying with pertinent technical standards of the rule part(s) under which it is to be operated; and, (2) [a] grant of the application would serve the public interest, convenience and necessity."[27] This obligation falls primarily on the manufacturer because these transmitters may not be marketed until certificated.[28]

Although the manufacturers of the interfering wireless repeaters have generally received equipment certifications from the FCC, they are violating their certification by marketing and selling their equipment for use by individuals who are not expressly authorized by the licensee to operate such devices. Section 302(b) of the Communications Act prohibits entities from manufacturing, importing, selling, offering for sale, and shipping devices which fail to comply with the FCC's regulations.[29] As noted above, only Part 22 cellular or Part 24 PCS licensees can be licensed to operate these devices. The licensee may then authorize other entities to operate these devices provided they remain under the operational control of the licensee. Therefore, marketing these devices to other entities that the manufacturer or distributor has reason to know the licensee has not authorized or will not authorize to operate such a device is prima facie inconsistent with the public interest, convenience and necessity. Accordingly, manufacturers are responsible for ensuring that their marketing efforts do not undercut the licensing requirements by touting their devices as FCC certified while at the same time ignoring

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[27] 47 C.F.R. § 2.915.

[28] *See* 47 C.F.R. § 2.803.

[29] 47 U.S.C. § 302(b) ("No person shall manufacture, import, sell, offer for sale, or ship devices or home electronic equipment and systems, or use devices, which fail to comply with regulations promulgated pursuant to this section").

the requirement that users be expressly authorized by licensees to employ the devices.[30] For this reason, as well as the reasons outlined above, CTIA requests that the FCC issue a Public Notice clarifying that manufacturers, under their current equipment authorizations, are prohibited from marketing and selling wireless repeaters directly to consumers and other entities for use without the express authorization by the licensee to operate the devices.

III. INCIDENCES OF INTERFERENCE FROM WIRELESS REPEATERS ARE INCREASING

While the legal case for FCC action to stop the unauthorized installation and operation of wireless repeaters is clear, real life examples demonstrate that FCC action is necessary to prevent the unauthorized installation and operation of wireless repeaters. Customers across the nation have been installing wireless repeaters/boosters in their homes, cars, boats and offices in an attempt to improve their wireless coverage. These customers, as a whole, however, have been installing inexpensive devices that they purchased over the Internet[31] or from big-box electronics retailers (e.g. Fry's, CompUSA, etc.) that have not been authorized by the licensed wireless carriers. As a result of these unauthorized operations, wireless carriers, including all of the nationwide providers and many regional and smaller providers, are experiencing significant

[30] 47 C.F.R. § 2.927(c) provides that "[n]o person shall, in any advertising matter, brochure, etc., use or make reference to an equipment authorization in a deceptive or misleading manner or convey the impression that such equipment authorization reflects more than a Commission determination that the device or product has been shown to be capable of compliance with the applicable technical standards of the Commission's rules." The indiscriminate marketing of mobile amplifiers and signal boosters to any prospective purchaser while at the same time boasting that the devices are FCC approved runs afoul of this rule and undercuts the spectrum management efforts of the Commission and its licensees.

[31] These devices can be purchased at websites such as http://www.wirelessextenders.com; http://www.cellantenna.com; and http://www.simplycheap.com

interference that often results in a portion of a carrier's network going down, cutting off service to all of its customers in a given area.[32]

When a customer installs one of these devices, it may work properly for a certain amount of time but it may still cause interference and other problems in the licensed networks in the area. Furthermore, at some point during operation the device may go into oscillation, creating significant debilitating interference to wireless system operations. As some of the examples explain in greater detail herein, this has typically led to two days or more of affected service as the source of the interference is isolated and removed. More robustly developed repeaters installed by carriers can detect when the transmitter has gone into oscillation and automatically shut down transmissions until the device is serviced and corrected. Lower quality equipment being manufactured and sold to consumers does not have a similar level of functionality. Accordingly, when a device begins to malfunction, it will not automatically turn off, in turn magnifying the interference problem. Indeed, both the manner in which these devices are installed (for example in a mobile configuration in a car, boat, etc.) and the lack of robustness of the devices themselves has lead to interference issues for the wireless industry to remedy.

When one of these devices begins to malfunction, it significantly degrades the network coverage and quality of service of the affected carriers.[33] More specifically, one of these malfunctioning devices can effectively bring down an entire sector of a cell site and may, on occasion, shut down the entire cell site. In cases where the malfunctioning device is mobile (*i.e.*, in a car), the device can sequentially impact multiple cell sites as it moves, resulting in a domino effect. Once a cell site is interfered with, it typically takes carriers two or more days to identify

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[32] Some examples of the types of interference carriers have experienced are attached in Appendix I.

[33] Many times, because these devices often work on all frequencies, they cause interference to all the wireless carriers providing service in that area.

the source of the interference. Additional time is spent making contact with a person at the location of the source and restoring the cell site(s) sector(s) to pre-interference operating conditions.

In addition, it is possible for a repeater to disrupt network-based E911 location solutions, a result that could cause significant harm to end users attempting to obtain emergency assistance at that location. Network-based E911 location systems require precise calculations of field strength and signal timing in the network to accurately estimate the location of subscribers. By operating unknown and uncontrolled wireless repeaters into the network, this delicate network balance is disrupted and disables the ability of the network provider to ensure that it can locate subscribers with the specified degree of accuracy. Therefore, more than simply disrupting routine wireless communications, wireless repeaters that are not controlled by carriers can adversely affect the public safety of wireless subscribers regardless of whether the repeater is operating as intended or if it is malfunctioning.

Virtually all wireless carriers have been experiencing an increasing amount of interference caused by the type of wireless repeaters often purchased and installed by consumers. Carriers are seeing this type of interference occur in ever increasing amounts. And the numbers of instances where this occurs are progressively increasing, in part because of the increasing publicity surrounding these devices. Swift action by both the carriers and the FCC is essential to ensure that this interference does not continue to grow.

IV. CARRIER EFFORTS TO RESOLVE THE PROBLEM

In response to this growing problem, wireless carriers are taking a variety of actions to minimize both the number of customers purchasing, installing, and operating these devices and the amount of interference they cause. For example, in today's extremely competitive

environment, carriers are re-doubling their efforts to make their systems as robust as possible, including adding cell sites and increasing signal strength in areas where their RF signal needs to be improved. Carriers work with various customers to design and install coordinated in-building cell sites and/or repeater systems that will not interfere with the carrier's network or the networks of their competitors. Depending on the carrier's relationship with the customer, the carrier may pay for either the full installation or part of the installation of an in-building system. Carrier installed systems are distinguishable in many respects from the problematic consumer devices discussed in this paper. These in-building systems, however, are often prohibitively expensive for consumer use.

The carriers are also working to improve consumers' awareness regarding the interference that these devices can cause. To date, the majority of the press has revolved around the purported benefits of these devices.[34] Little information, however, has been provided regarding the detrimental effect certain of these devices will have on carriers' networks, including networks of carriers with whom the consumer is not associated. To resolve this misconception, several wireless carriers will be adding information to their websites regarding the harmful effects that can result from these devices and making it clear that unauthorized deployment by a consumer of a repeater is prohibited. Wireless carriers also will continue efforts to improve service coverage and quality for consumers – whether by adding cell sites, increasing signal strength, or making available a wider variety of in-building systems.

V. FCC ACTION IS URGENTLY NEEDED

CTIA requests that the FCC take action aid the industry in resolving the growing problem presented by the use of wireless repeaters. As noted above, the industry believes that in order to

[34] *See, e.g.*, I.J. Hudson, In-home cell repeaters: Raising the Bars Yourself, nbc4.com, http://www.nbc4.com/technology/5089407/detail.html.

fix this problem, it is imperative that the FCC issue Public Notices that advise consumers that operation of these devices is prohibited by the Communications Act and the FCC's rules absent the express permission and control of wireless carriers. In this regard, the FCC has, in the past, issued a Public Notice advising that the use of cellular "jammers" was unlawful because "…in accordance with Section 301 of the Communications Act, 47 USC 301, persons operating or using radio transmitters must be licensed or authorized under the Commission's rules"[35], a copy of which is attached as Appendix II. Repeaters not installed and deployed pursuant to the authorization of and control by licensees that operate on Part 22 and Part 24 cellular and PCS frequencies, respectively, and which can cause interference and, in effect, jam a cellular or PCS carrier's network, should be treated no differently. The industry believes that without these actions by the Commission, these devices will continue to proliferate – resulting in significant harm to service coverage and quality and potential errors in E-911 location determination.

VI. THE FCC HAS AMPLE AUTHORITY TO ACT WITHOUT INITIATING A RULEMAKING

The Administrative Procedure Act[36] ("APA") explicitly states that an agency may act without following APA notice and comment rulemaking procedures when it adopts "interpretive rules,"[37] or rules that "merely clarify or explain existing law or regulations."[38] Accordingly, the FCC may issue separate Public Notices to both consumers and manufacturers clarifying and

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35 *See* "Office of Engineering and Technology and Compliance Information Bureau Warn Against the Manufacture, Importation, Marketing or Operation of Transmitters Designed to prevent or Otherwise Interfere with Cellular Radio Communications", DA 99-2150 (released October 12, 1999).

36 5 U.S.C. §§ 551-559.

37 *See id*. at § 553(b)(A); *see also U.S. Telecom Ass'n v. FCC*, 400 F.3d 29, 34 (D.C. Cir. 2005).

38 *Malone v. Bureau of Indian Affairs*, 38 F.3d 433, 438 (9th Cir. 1994) (quotation omitted).

confirming their inability to respectively operate or market wireless repeaters without proper authorization.

The APA and pertinent case law make clear that the FCC can remind persons of their current obligations without triggering the procedural requirements of the APA.[39] As described in detail above, consumers are under an existing obligation not to operate wireless repeaters without authorization.[40] Thus, consistent with the APA and applicable case law, the FCC may issue a Public Notice to consumers reminding them that operating wireless repeaters, except under the express authorization and control of system licensees, is unlawful and may result in service outages and other harms to the wireless network without following APA notice and comment procedures.

As with the consumer Public Notice, the FCC may issue a Public Notice to manufacturers, importers, distributors, and retailers clarifying that they are only permitted to market and sell repeaters for use by authorized users. As outlined above, the FCC may issue Public Notices clarifying that persons must comply with existing FCC regulations. Thus, to the extent that existing FCC regulations (taken together) provide that manufacturers may market

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[39] *See, e.g.*, *Yale Broadcasting Co. v. FCC*, 478 F.2d 594, 599-600 (D.C. Cir. 1973) (stating that the FCC may remind persons of their existing obligations without having to follow 5 U.S.C. § 553); *see also Orengo Caraballo v. Reich*, 11 F.3d 186, 194-95 (D.C. Cir. 1993) (observing that interpretive statements are those which merely remind affected parties of their existing duties and are, therefore, exempt from the APA's notice and comment procedures); *Chamber of Commerce v. OSHA*, 636 F.2d 464, 46869 (D.C. Cir. 1980) (providing that interpretive rules are those which "only provide a clarification of statutory language") (quotations omitted).

[40] *See* 47 U.S.C. § 301 ("No person shall use or operate any apparatus for the transmission of energy or communications or signals by radio . . . except . . . with a license in that behalf granted under the provisions of this Act"); *see also* 47 C.F.R. § 1.903 ("Stations in the Wireless Radio Services must be used and operated only in accordance . . . with a valid authorization granted by the Commission.").

wireless repeaters for use only by authorized users,[41] then the Commission may, consistent with the APA, issue a Public Notice to those manufacturers outlining their existing obligations.[42]

Even assuming that the FCC's existing regulations (taken as a whole) do not clearly state that manufacturers may only market wireless repeaters to authorized users, the FCC may issue a Public Notice reminding makers and importers of the devices that the equipment may be marketed only for use by persons who are authorized by licensees to operate the devices. The notice should also inform equipment authorization applicants that the Commission expects their applications to explain the steps taken in the design of the devices to ensure that operation by an authorized user will not simultaneously result in unauthorized radiation within the spectrum licensed to other FCC licensees.[43] Such a notice may be issued without using APA notice and comment procedures. The APA expressly provides that a federal agency does not need to use notice and comment procedures when it adopts interpretive rules.[44] Interpretive rules include statements, such as the requested manufacturer Public Notice, that clarify existing regulations.[45]

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[41] Manufacturers are under an existing obligation to only market wireless repeaters that comply with the Communications Act and the FCC's rules. *See* 47 U.S.C § 302(b). Thus, if a manufacturer knowingly markets a wireless repeater to an unauthorized user, then that device cannot be used in compliance with the Communications Act or FCC rules. The manufacturer is therefore marketing a device that is not capable of complying with the Communications Act or the FCC's rules and is in violation of the Act and the FCC's rules.

[42] *See*, *e.g.*, *Yale*, 478 F.2d at 599-600 (stating that the FCC may remind persons of their existing obligations without having to follow 5 U.S.C. § 553); *see also Orengo Caraballo*, 11 F.3d at 194-95 (observing that interpretive statements are those which merely remind affected parties of their existing duties and are, therefore, exempt from the APA's notice and comment procedures); *Chamber of Commerce*, 636 F.2d at 468-69 (providing that interpretive rules are those which "only provide a clarification of statutory language") (quotations omitted).

[43] As noted earlier, the broadband nature of many signal boosters and mobile amplifiers can result in radiation within the spectrum authorized for use by licensees, including public safety licensees, operating systems other than the system employed by the user of the device.

[44] *See* 5 U.S.C. § 553(b)(A); *see also U.S. Telecom*, 400 F.3d at 34.

[45] *Malone*, 38 F.3d at 438 (quotation omitted).

Moreover, statements are interpretive and exempt from the APA if existing regulations logically justify them.[46]

Issuing the requested Public Notice would fall squarely within the interpretive rule exception to the APA. The FCC's existing regulations logically justify clarifying that manufacturers may only market wireless repeaters to authorized users. As described above, it is a violation of FCC regulations for persons who are not authorized users to operate wireless repeaters. Moreover, numerous regulations and provisions of the Act provide that manufacturers must market their equipment in compliance with federal law.[47] Thus, the FCC would not be acting inconsistent with any existing regulations if it issued a Public Notice stating that manufacturers may not market wireless repeaters in ways that encourage their operation by unauthorized users.[48] Indeed, the FCC's rules logically justify issuance of a Public Notice.

What is more, the FCC is due substantial deference when implementing the Communications Act, and "even greater deference" when interpreting its own rules and regulations.[49] Reviewing courts uphold agency interpretations of their enabling act and rules

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[46] *See Chao v. Rothermel*, 327 F.3d 223, 227 (3d Cir. 2003); *see also* Central Texas Telephone Co-op., Inc. v. FCC, 402 F.3d 205, 212 (D.C. Cir. 2005) (An interpretive rule "must be interpreting something. It must derive a proposition from an existing document whose meaning compels or *logically justifies the proposition*. The substance of the derived proposition must flow fairly from the substance of the existing document." (quotations omitted, emphasis added).

[47] *See*, *e.g.* 47 U.S.C. § 302(b) ("No person shall manufacture, import, sell, offer for sale, or ship devices . . . which fail to comply with regulations promulgated pursuant to this section."); *see also* 47 C.F.R. § 2.915 (stating that the Commission shall only certify equipment if doing so would serve the public interest); *see also* 47 C.F.R. § 2.939(a)(4) (providing that the FCC has authority to revoke equipment authorizations because of conditions coming to the Commission's attention that would warrant refusing to grant the original application).

[48] *See Shalala v. Guernsey Mem'l Hosp.*, 514 U.S. 87, 100 (1995)

[49] *Capital Network Sys. v. FCC*, 28 F.3d 201, 206 (D.C. Cir. 1994); *Global NAPs, Inc. v. FCC*, 247 F.3d 252, 257-58 (D.C. Cir. 2001); *Udall v. Tallman*, 380 U.S. 1, 16 (1965) ("When faced with a problem of statutory construction, this Court shows great deference to the interpretation given the statute by the officers or agency charged with its administration. To sustain the Commission's application of this statutory term, we need not find that its construction is the only reasonable one or even that it is the result we would have reached had the question arisen in the first instance in judicial proceedings.").

when they are "reasonable [and] based upon factors within the Commission's expertise."[50] Indeed, "in construing administrative regulations, the ultimate criterion is the administrative interpretation, which becomes of controlling weight unless it is plainly erroneous or inconsistent with the regulation."[51]

Moreover, the FCC has ample authority and jurisdiction to enforce its rules against non-licensee importers, distributors, and retailers. The Communications Act empowers the Commission to impose monetary forfeitures on persons who do not hold an FCC license, permit, certificate, or other authorization.[52]

Thus, the FCC has sufficient authority to issue the two requested Public Notices without initiating a notice and comment rulemaking or ruling and may, consistent with the public interest, enforce the Communications Act and the FCC's rules against consumers, manufacturers, and certain non-FCC licensees.

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50 *Global NAPs*, 247 F.3d at 258 (citation omitted, alteration in original).

51 *United States v. Larionoff*, 431 U.S. 864, 872 (1977) (quotations omitted).

52 *See* 47 U.S.C. § 503(b)(5).

Appendix I

Examples of Harmful Interference

Below are examples of harmful interference carriers (and their customers) have experienced as a result of unlawful operation of wireless repeaters:

1. The carrier became aware of significant problems being encountered at an in-building system utilized by a large customer in an office park. After investigating, the carrier discovered the culprit was a Bi-Directional Amplifier (BDA), owned and operated by a major customer, which had gone into compression. The problem lasted for several weeks and took approximately twenty-five man hours to correct.

2. A city government installed a signal amplification system in a large convention center. After investigating poor signal quality and coverage and exploring the possibility of designing an in-building solution at the convention center, the carrier discovered that the configuration of the existing system would not allow for any such solution. After thirty man hours of investigation and analysis, the matter remains unresolved. The existing system is still in place and operating – to the detriment of the carrier and its customers.

3. A B band cellular provider spent over 48 man hours to locate a customer's defective repeater. Negative impacts from the repeater included increases in bit error rates (BER) reflecting uplink interference and call blocks reflecting customers who did not receive service when requested. The amount of lost revenue may not be calculated, but the negative impact upon the carrier's customers is measured only by the customers who complain about or disconnect their service.

4. The carrier was experiencing uplink interference near a metropolitan airport over the course of an entire year. The interference caused decreased coverage and an increase in dropped calls. After seventy-five man hours, it was discovered that the airport authority was operating a BDA, which adversely impacted four separate cell sites and six individual sectors.

5. A carrier began detecting up link interference in a specific cell site and, after visiting the site, was able to trace the source of interference to a nearby business with a repeater. After being contacted by the carrier, the company uninstalled the repeater. It took the carrier almost three weeks to detect, locate, and decommission the repeater, and this occurred only with the cooperation of the offending user.

6. A carrier began detecting interference to two sectors on adjacent cell sites and, after visiting the site, was able to trace the source of interference – a wireless repeater. The carrier devoted approximately 20 engineering hours to find and address the problem. The cell site sectors were impacted for approximately 100 hours.

7. A carrier began detecting interference to a cell site from a wireless repeater. The carrier devoted approximately 16 engineering hours to find and address the problem. The cell site was degraded for approximately 100 hours.

Appendix II

PUBLIC NOTICE

News media information 202 / 418-0500
Fax-On-Demand 202 / 418-2830
Internet: http://www.fcc.gov
ftp.fcc.gov

Federal Communications Commission
445 Twelfth St., S.W.
Washington, D.C. 20554

DA 99-2150
Released: October 12, 1999

Office of Engineering and Technology and Compliance and Information Bureau Warn Against the Manufacture, Importation, Marketing or Operation of Transmitters Designed to Prevent or Otherwise Interfere with Cellular Radio Communications

The Commission's Office of Engineering and Technology (OET) and Compliance and Information Bureau (CIB) have received several inquiries concerning the use of transmitters designed to prevent or jam the operation of cellular telephones in hospitals, theaters and other locations. The Communications Act of 1934, as amended, and the Commission's Rules do not permit these devices to be manufactured, imported, marketed or operated within the United States.

Section 302(b) of the Communications Act, 47 USC 302(b), prohibits the manufacture, importation, sale, offer for sale, or use of devices that fail to comply with the regulations promulgated pursuant to this section. Similar prohibitions are contained in the Commission's rules, *e.g.*, 47 CFR Sections 2.803, 2.1203, and 22.377. In addition, in accordance with Section 301 of the Communications Act, 47 USC 301, persons operating or using radio transmitters must be licensed or authorized under the Commission's rules. There are no provisions in the FCC's rules that permit the operation of any device intended to interfere with cellular communications. Further, Section 333 of the Communications Act, 47 USC 333, prohibits any person from willfully or maliciously interfering with the radio communications of any station licensed or authorized under the Communications Act or operated by the U.S. Government.

Based on the above, the operation of transmitters designed to jam cellular communications is a violation of 47 USC 301, 302(b), and 333. The manufacture, importation, sale or offer for sale, including advertising, of such transmitters is a violation of 47 USC 302(b). Parties in violations of these provisions may be subject to the penalties contained within 47 USC 501-510. Fines for a first offense can range as high as $ 11,000 for each violation or imprisonment for up to one year. The equipment can also be seized and forfeited to the U.S. Government.

OET and CIB wish to emphasize that the above regulations apply to all transmitters that are designed to cause interference to, or prevent the operation of, other radio communication systems.

Questions regarding this Public Notice may be directed to the Commission's National Call Center at 1-888-CALL FCC (1-888-225-5322).